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EXAMINER

PUENTE, EVA YI ZHENG

ART UNIT	PAPER NUMBER
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2611

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11/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/981,795

Applicant(s)

SCHETELIG ET AL.

Examiner

Eva Y. Puente

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-19 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 20,21,27,28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/14/07 have been fully considered but they are not persuasive. Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

Applicant's argument – (1) Ohsuge does not disclose claimed features. Persson does not make up for the deficiencies in Ohsuge. (2) The timing synchronization of Persson and the timing estimator 21 of the present application are provided to consider the same issue. A skill person in the art would not refer to Persson as it does not teach or suggest Applicant's claimed features. (3) Persson does not disclose the claimed feature of dependent claim 15. (4) Dependent claims 17, 20, and 27 are allowable.

Examiner's response – (1) The claimed limitations of independent claims 12, 18, and 24 are anticipated by prior art of Ohsuge et al. in view of Persson et al. In figure 22, Ohsuge depicts a conventional CDMA receiver, wherein the rake synthesis reception section (25) receives digital signal converted from A/D section to indicate signal reception and information from multipath search section (24) in predetermined cycles (Col 2, L6-11). To improve from conventional receiver, Ohsuge teaches several embodiments for path detection in a CDMA receiver. In particular, embodiment six and figure 18 directly disclose the claimed subject matters of current application. Ohsuge discloses a CDMA receiver comprises a rake reception section (7 in Fig. 18) perform data extraction. First, rake reception section receives information outputted from A/D

conversion section (6) to indicate data reception. Second, the rake reception section receives information outputted from rake path allocation (18) as input. The path allocation is determined from the correlation peak positions based on a valid data threshold comparison section (83). Data extraction (7) occurs after receiving peak value from element 18, wherein the peak value is determined from correlation values larger than the threshold value (Col 15, L43-55). Since the rake reception section is performed in predetermined cycles, it clearly indicates that the data extraction is exhibit periodically and on-going process. Therefore, Ohsuge disclose "starting or restarting data extraction....." Although, Ohsuge et al. disclose a valid data determination with a threshold section (83 in Fig. 18), but is silent about storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value; and continuing comparing the received bit stream with the expected bit sequence to determine a new correlation value. However, prior art Persson et al make up for such deficiency. Persson discloses comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Therefore, it is obvious to one of ordinary skill in art to implement the teaching of updating correlation value with threshold value as taught by Persson et al in the CDMA receiver of Ohsuge

et al. By doing so, provide better signal channel performance and reduce probability of error. Therefore, the combined teaching of Ohsuge and Persson meet claimed limitation of current application.

(2) Persson, in the same field of endeavor as Ohsuge, teaches an improvement of bit error performance in a receiver system, wherein a correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). In addition, Persson explicitly states that updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Persson anticipates limitation recited in the claims explicitly or inherently. Therefore, Persson is a proper prior art.

(3) Applicant is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of claims. Applicant's argument over claim 15 is unclear. Applicant reasons that Persson's invention is to avoid any rejection of extracted data. This argument lacks of support by evidence. Persson clearly states that updating threshold value to reduce the probability of false alarm (Col 3, L21-25). In logic, the data extracted from the previous threshold (i.e, false alarm) should be rejected so as to improve quality. Therefore, Persson discloses the claimed feature of dependent claim 15.

(4) Regarding to claim 17, Ohsuge and Persson disclose all the subject matters except for the specific teaching of timing of sampling is continuously tracked by comparing

timing of symbols within an oversampled bit stream with actual timing of the sampling and correcting the timing of the sample if a deviation between the timing of the sampling and the timing of the symbols exceeds a value. Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, where oversampled data and optimal sampling phase are coupled with symbol timing decimator (as shown in Fig. 2). This provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art at the time of invention was mad to combine the efficient timing estimation system by Gurney et al with the CDMA receiver by Ohsuge et al. By doing so, provide optimal receiver, better reception signal quality, consume less power, and reduce production cost. In addition, claims 20 and 27 are objected as being dependent upon a rejected claim.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12-15, 18 and 22-25 are rejected under 35 U.S.C. 103(a) as being anticipated by Ohsuge et al. (US 6,768,729) in view of Persson et al (US 6,587,500).

a) Regarding claim 12, Ohsuge et al. disclose a method comprising:
comparing a bit stream derived from a received digital data stream with an

expected bit sequence to determine a correlation value for detecting a data packet (3 in Fig.18; it is well known that a correlation value is generated by comparing an expected bit sequence with a received bit sequence; the A/D block 6 produce digital sequences) ;

starting data extraction from the bit stream when the correlation value exceeds a threshold value to indicate that a data packet has been detected (7 in Fig.18; data extraction occurs after receiving peak value from element 18, wherein the peak value is determined from correlation values larger than the threshold value); and

restarting data extraction from the bit stream when the new correlation value exceeds the stored maximum correlation value (data extraction occurs after receiving peak value from element 18, wherein the peak value is determined from correlation values larger than the new threshold value; rake reception section 7 in Fig. 18 is performed in predetermined cycles (Col 2, L6-11).).

Ohsuge et al. disclose a valid data determination with a threshold section (83 in Fig. 18), but failed to teach storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value; and continuing comparing the received bit stream with the expected bit sequence to determine a new correlation value.

However, Persson et al disclose comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value

(Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25).

Therefore, it is obvious to one of ordinary skill in art to implement the teaching of updating correlation value with threshold value as taught by Persson et al in the CDMA receiver of Ohsuge et al. By doing so, provide better signal channel performance and reduce probability of error.

b) Regarding claim 13, Persson et al disclose wherein the threshold value is a programmable value (Fig. 4; Col 4, L30-40).

c) Regarding claim 14, Persson et al disclose wherein the correlation value is stored as the maximum correlation value each time data extraction is started or restarted and the new correlation value continuously determined after starting or restarting data extraction is compared with the stored maximum correlation value (Fig. 4; L40-53).

d) Regarding claim 15, Persson et al. disclose wherein data extracted prior to restarting data extraction is rejected (since Persson teaches updating threshold value to reduce the probability of false alarm (Col 3, L21-25), it is obvious that the data extracted from the previous threshold (i.e, false alarm) should be rejected so as to improve quality. (official notice is taken here)).

e) Regarding to claims 18 and 24, Ohsuge et al. disclose an apparatus comprising:
a data extraction unit configured to extract data from a received data stream (7 in Fig. 18);

a packet detector configured to compare a bit stream derived from a received digital data stream with an expected bit sequence to determine a correlation value for detecting a data packet, the packet detector comprising means for comparing the received bit stream with the expected bit sequence after starting data extraction to determine a new correlation value (3 and 13 in Fig.18).

Ohsuge et al. disclose a sync-control module (8 in Fig. 18) for receiving the correlation value from the packet detector, the sync-control module controlling the data extraction unit for starting or restarting data extraction (7 in Fig. 18), but failed to teach storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value; and continuing comparing the received bit stream with the expected bit sequence to determine a new correlation value.

However, Persson et al disclose comparison of a correlation value with a variable threshold value. If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25).

Therefore, it is obvious to one of ordinary skill in art to implement the teaching of updating correlation value with threshold value as taught by Persson et al in the CDMA receiver of Ohsuge et al. By doing so, provide better signal channel performance and reduce probability of error.

f) Regarding to claims 22, 23 and 25, Persson et al disclose synchronizes the received data stream based on the stored maximum correlation value (Fig. 6).

4. Claims 16, 17, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsuge et al. (US 6,768,729) in view of Persson et al (US 6,587,500), further in view of Gurney et al. (US 5,619,542).

a) Regarding claims 16, 19 and 26, Ohsuge and Persson disclose all the subject matters above except for the specific teaching of an initial timing estimator which received the digital data stream for determining an initial estimate prior to starting data extraction for synchronizing data extraction with data stream symbols.

Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, comprising symbol timing estimator (204 in Fig.2); symbol timing decimator (202); and a selector (206). The symbol timing decimator minimize receiver signal's measured or estimated distortion. It also provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art at the time of invention was mad to combine the efficient timing estimation system by Gurney et al with the CDMA receiver by Ohsuge et al. By doing so, provide optimal receiver, better reception signal quality, consume less power, and reduce production cost.

b) Regarding claim 17, Ohsuge and Persson disclose all the subject matters above except for the specific teaching of timing of sampling is continuously tracked by comparing timing of symbols within an oversampled bit stream with actual timing of the

sampling and correcting the timing of the sample if a deviation between the timing of the sampling and the timing of the symbols exceeds a value.

Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, where oversampled data and optimal sampling phase are coupled with symbol timing decimator (as shown in Fig. 2). This provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art at the time of invention was made to combine the efficient timing estimation system by Gurney et al with the CDMA receiver by Ohsuge et al. By doing so, provide optimal receiver, better reception signal quality, consume less power, and reduce production cost.

Allowable Subject Matter

5. Claims 20, 21, 27 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Puente
Examiner
Art Unit 2611

November 5, 2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER